

**Presentation Summary:**

**[This is simply a summary of the material to be presented, and the actual presentation will elaborate on this discussion.]**

**AUDIT INFORMATION DISSEMINATION, TAXPAYER  
COMMUNICATION, AND COMPLIANCE: AN EXPERIMENTAL  
APPROACH**

James Alm, Betty R. Jackson, and Michael McKee

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Andrew Young School of Policy Studies, Georgia State University

Leeds School of Business, University of Colorado at Boulder

Department of Economics, University of Tennessee at Knoxville.

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## INTRODUCTION

- Taxpayer audits are a central feature of the voluntary compliance system in the United States federal individual income tax.
- Audits are thought to have a *direct* deterrent effect on the individuals actually audited through the application of penalties.
- In addition, audits are believed to have an *indirect* deterrent effect on individuals not audited.
- Empirical evidence (Dubin, Graetz, and Wilde 1990; Tauchen, Witte, and Beron, 1989) suggests that changes in audit rates affect compliance beyond the audited individuals themselves.
- However, the ways in which audits deter taxpayers from evading, whether from their direct or indirect effects, is not well understood.

### **The purpose of this study is to examine the roles of information dissemination and taxpayer communication on voluntary compliance.**

We examine three types of communication about audit frequency and audit results using laboratory market experiments in which the audit setting and communication opportunities are controlled.

In all experimental treatments subjects are informed of the objective probability that their return will be audited and the success rate of the audit process.

**Base case:** subjects receive no further information about audit results beyond their own audit experience.

**Treatment:** subjects are informed of the actual number of audits conducted during the previous period.

**Treatment:** subjects are offered opportunity to send a “message” to other participants about their audit experience, subjects may choose to send no message, and subjects may choose to send a message that is truthful or not.

Resulting data allow us to test hypotheses concerning the effects of two types of communication of audit results:

“Official” communications from the “government” (e.g., the experimenter)

“Unofficial” or informal communications among “taxpayers” (e.g., the subjects)

## **EXPERIMENTAL DESIGN**

Experimental design captures the essential features of the voluntary income reporting and tax assessment system:

- Human subjects in a controlled laboratory environment earn income through performance in a task, and the actual income earned is determined by the (relative) performance in the task.
- The subjects must decide how much of this income to declare to a tax agency.
- Taxes are paid on declared income – not on unreported income.
- Unreported income may be discovered via an audit with some probability, and the subject must then pay a fine on the unpaid taxes.
- This reporting, audit, and penalty process is repeated for a given number of rounds that each represent a tax period, and is replicated with different sets of subjects.

Specific Features:

- The earnings task requires subjects to sort digits 1 through 9 into the correct order from a randomized order presented in a 3 by 3 matrix. Actual income is determined by the relative speed of performance.
- After the earnings task is completed, subjects are informed (via the computer) of their income for the round and presented with a screen that resembles a tax form – they then report their income.
- The tax screen informs the subjects of: current tax rate, current probability of an audit, and penalty rate applied to non-disclosed income.
- To focus on the central objective of this investigation, certain parameters (e.g., tax rate and penalty rate) are fixed throughout the experiments – the tax rate is set at 0.35 throughout the experiments and the fine rate is set at 150 percent.
- Audits investigate only the current period disclosure – four different audit rates are employed (0.05, 0.10, 0.30 and 0.40).

Hypotheses:

*H1: Compliance will be higher with higher audit rates.*

*H2: Being audited in the previous period will reduce compliance.*

*H3: Compliance will be lower for taxpayers with higher incomes.*

*H4: The impact of wealth on compliance is uncertain.*

*H5: The official announcement of the number of audits in the previous period will, ceteris paribus, increase compliance*

*H6: Unofficial communication between taxpayers will, ceteris paribus, increase compliance.*

**Table 1 – Experimental Design <sup>a</sup>**

<b>Information</b>	<b>Communication</b>	
	No	Yes
Do Not Announce Audit Results	T1	T3
Announce Audit Results	T2	

<sup>a</sup> All treatments last 30 rounds. In all treatments, the tax rate is 0.35, the fine rate is 1.5, subjects are organized into groups of eight persons, and the income range is the same for all sessions (the maximum is 100 lab dollars and the minimum is 60 lab dollars, in increments of 5 lab dollars).

**Table 2 – Possible Messages in Treatment 3 <sup>a</sup>**

<b>Message</b>	<b>Message Content</b>
1	Do Not Send a Message
2	I Was Not Audited
3	I was Audited
4	I Was Not Audited and Did Not Report all my Taxes
5	I was Not Audited and Reported all my Taxes
6	I Was Audited and Did Not Report all my Taxes
7	I Was Audited and Reported all my Taxes

<sup>a</sup> Subjects are only permitted to send one message from this list in each round. They must send a message before they can proceed to the end of the current period.

## **EXPERIMENTAL RESULTS**

Summary statistics for the variables analyzed are reported in Table 3.

Basic behavior is shown in Figure 1 – compliance rates for each information treatment.

Results:

Tables 4 and 5

**Table 3 – Summary Statistics**

<b>Variable</b>	<b>Definition</b>	<b>Mean</b>	<b>Standard Deviation</b>
Evaded	Income underreported for taxes, defined as (Income–Declared)	42.086	37.92
Declared	Income declared for tax purposes	38.13	36.77
Comprate	Compliance rate, defined as (Declared/Income)	0.48	0.45
Income	Income earned via the earning task for current round	80.22	12.13
Wealth	Accumulated earnings to date	996.77	558.52
Praudit	Probability of an audit	0.21	0.15
Official	Actual number of audits from previous round, reported via computer to subjects	0.39	0.49
Unofficial	Dummy variable equal to 1 if communication between subjects is allowed via computer and 0 otherwise	0.34	0.47
Naudit	Number of audits in previous round	1.57	1.58
NauditXOfficial	Number of audits interacted with whether this information is reported to the subjects (“Official”)	0.66	1.28
NauditXUnofficial	Number of audits interacted with whether subjects are permitted to communicate (“Unofficial”)	.208	0.59
Lagaudit	Dummy variable equal to 1 if the individual was audited in the previous period and 0 otherwise	0.20	0.40
Preptax	Dummy variable equal to 1 if the individual says he or she prepares and files their own taxes and 0 otherwise	0.31	0.46

**Table 4 – Tobit Estimation <sup>a</sup>**

<b>Independent Variables</b>	<b>Dependent Variable</b>	
	Declared	Comprate
Constant	6.701 (1.38)	1.232*** (10.72)
Income	0.411*** (7.28)	-0.006*** (4.54)
Wealth	-0.027*** (21.90)	-0.0006*** (19.52)
Praudit	90.99*** (18.79)	2.213*** (17.60)
Lagaudit	-2.598 (1.47)	-0.079* (1.87)
Official	-4.104** (2.41)	-0.132*** (3.27)
Unofficial	4.104** (2.08)	0.039 (0.93)
Preptax	-4.469*** (3.03)	-0.076** (2.18)
LR	933.73***	847.07***

<sup>a</sup> In both estimations, the number of observations is 5278, the number of subjects is 182, and the number of time periods is 29. Numbers in parentheses are t-statistics.

Significance levels are denoted as:

\* 0.10, \*\* 0.05, \*\*\* 0.01.

**Table 5 – Panel Estimation <sup>a</sup>**

<b>Independent Variables</b>	<b>Dependent Variable</b>			
	Comprate	Comprate	Declared	Declared
Constant	0.499*** (15.94)	0.495*** (17.12)	3.793 (1.46)	3.887* (1.61)
Income	-0.0012*** (4.77)	-0.0013*** (5.07)	0.355*** (16.19)	0.348*** (15.82)
Wealth	-0.0002*** (13.05)	-0.0002*** (13.44)	-0.015*** (13.18)	-0.015*** (13.57)
Praudit	0.830*** (19.17)	0.839*** (19.07)	66.771*** (18.31)	66.831*** (18.22)
Lagaudit	-0.019*** (2.74)	-0.019*** (2.59)	-1.516** (2.49)	-1.497** (2.38)
NauditXOfficial		0.0001 (0.24)		0.097 (0.32)
NauditXUnofficial		0.013** (1.89)		0.929* (1.66)
Official	-0.067*** (3.51)		-5.266*** (3.34)	
Unofficial	0.059*** (2.89)		5.018*** (3.00)	
Preptax	-0.033** (1.93)	-0.027* (1.63)	-2.358* (1.67)	-2.245* (1.60)
Wald	725.90***	700.42***	673.07***	872.66***
Log-likelihood	-77.645	-95.591	-92.591	-23461.8

<sup>a</sup> These estimations are subject fixed effects estimations. In all estimations, the number of observations is 5278, the number of subjects (panels) is 182, and the number of time periods is 29. The numbers in parentheses are z-statistics. Significance levels are denoted as:

\* 0.10, \*\* 0.05, \*\*\* 0.01.

Figure 1

